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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,733	09/18/2003	Kenzo Okamoto	WAM-04601	4719

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT PAPER NUMBER

2834

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,733

Applicant(s)

OKAMOTO ET AL.

Examiner

Thomas M. Dougherty

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 903.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-7, 9, 10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihiro (JP 2002-084160) in view of Terayama (GB 1 465 970).

As noted in the most previous office action, Yoshihiro shows (figs. 1-4) a surface mount crystal unit comprising: a substrate (21) for surface-mounting; a pair of connecting electrodes (22, 23) disposed on a principal surface of said substrate (21), a crystal blank (3) having excitation electrodes (31, 33) and extension electrodes (32, 34) extending from said excitation electrodes (31, 33) to respective opposite sides of an end of said crystal blank (3), said opposite sides being fixed to said connecting electrodes (22, 23) by an electrically conductive adhesive (4); and a ridge (5) corresponding to said end of the crystal blank (3) and disposed on said substrate (21) in spaced relation to said connecting electrodes (21, 22), said ridge (5) having a height greater than a thickness of said connecting electrodes (32, 34) said electrically conductive adhesive being applied to said connecting electrodes, a spacing between said connecting electrodes and said ridge, and an upper surface of said ridge, said crystal blank having an opposite end which remains lifted about said ridge from said principal surface of said substrate (21) under shrinking forces of said electrically conductive adhesive (4).

Further shown is a frame wall (27) laminated on said substrate (21) and having an opening (20), said substrate (21) and said frame wall (27) jointly defining a recess (20), said crystal blank (3) being accommodated in said recess (20).

Said ridge (5) comprises a pair of ridges associated respectively with said connecting electrodes (22, 23).

Said ridge (5) comprises a common ridge shared by said connecting electrodes.

Yoshihiro shows (figs. 1-4) a surface mount crystal unit comprising: a substrate (21) for surface-mounting; a pair of connecting electrodes (22, 23) disposed on a principal surface of said substrate (21); a crystal blank (3) having excitation electrodes (31, 33) and extension electrodes (32, 34) extending from said excitation electrodes (31, 33) to respective opposite sides of an end of said crystal blank (3), said opposite sides being fixed to said connecting electrodes (22, 23) by an electrically conductive adhesive (4); and a ridge (5) corresponding to said end of the crystal blank (3) and disposed on said substrate (21) in contact with said connecting electrodes (22, 23), said ridge (5) having a height greater than the thickness of said connecting electrodes (22, 23); said electrically conductive adhesive (4) being applied to said connecting electrodes (22, 23), and an upper surface of said ridge (5); said crystal blank (3) having an opposite end which remains lifted about said ridge (5) from said principal surface of said substrate (21) under shrinking forces of said electrically conductive adhesive (4).

Yoshihiro shows (figs. 1-4) a surface mount crystal unit comprising: a substrate (21) for surface-mounting a crystal blank (3), a frame wall (27) laminated on said substrate (21) and having an opening (20), wherein said substrate (21) and said frame

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wall (27) jointly defining a recess (20) for accepting a crystal blank (3); a pair of connecting electrodes (22, 23) disposed on a principal surface of said substrate (21); and a ridge (5) corresponding to an end of said opening (20), said ridge (5) being disposed on said substrate (21) in spaced relation to said connecting electrodes (22, 23) and having a height greater than a thickness of said connecting electrodes (22, 23),

Said ridge (5) comprises a pair of ridges associated respectively with said connecting electrodes (22, 23).

Yoshihiro doesn't show at least an outer portion of said ridge is an insulating material having a high bonding strength with respect to said electrically conductive adhesive.

Terayama shows (e.g. fig. 2) a crystal unit comprising: a pair of connecting electrodes (18, 19) disposed within a casing; a crystal blank (10) having excitation electrodes (15, 26) and extension electrodes (e.g. 22) extending from said excitation electrodes (15, 26) to respective opposite sides of an end of said crystal blank (10), said opposite sides being fixed to said connecting electrodes (18, 19); and a ridge (31) corresponding to said end of the crystal blank (10) and disposed in case in spaced relation to said connecting electrodes (18, 19), said ridge (31) having a height greater than a thickness of said connecting electrodes (18, 19), wherein at least an outer portion of said ridge (31) is an insulating material, a spacing between said connecting electrodes (18, 19) and said ridge (31), and an upper surface of said ridge (31), said crystal blank (10) having an opposite end which remains lifted about said ridge (31) from said principal surface of said casing.

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Said ridge (31) is made entirely of an insulating material. See page 2, lines 68-74.

Said ridge (31) comprises a common (single) ridge.

Terayama does not show a substrate per se.

It would have been obvious to one having ordinary skill in the art to use an insulating material for the material of the ridge in the device of Yoshihiro at the time of his invention as is shown by Terayama since as Terayama notes that such a material is adequate to provide support to the oscillator element. Regarding recitation of adhesive, it would be obvious to one of ordinary skill in the art to provide for the best bonding possible to prevent the device from short life-expectancy.

Claims 3, 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihiro (JP 2002-084160) in view of Terayama (GB 1 465 970). Given the combined invention as noted above, the combination does not show a substrate and ridge both made of ceramics.

It would have been obvious to one having ordinary skill in the art to employ both a ceramic ridge and substrate in the combined device of Yoshihiro and Terayama since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional prior art cited reads on at least some aspects of the claimed invention.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

May 24, 2005

Thomas M. Dougherty

**TOM DOUGHERTY
PRIMARY EXAMINER**